

PATENT COOPERATION TREATY

DOCKETED

From the INTERNATIONAL SEARCHING AUTHORITY

14 APR 2005

PCT

To:

IMPETUS IP LIMITED
Attn. Wharmby, Martin A.
Grove House, Lutyens Close,
Chineham Court, Basingstoke
Hampshire RG24 8AG
UNITED KINGDOM

IMPETUS

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

Received

(PCT Rule 44.1)

Impetus

Date of mailing
(day/month/year)

11/04/2005

Applicant's or agent's file reference

SC13131ET /PCT

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No.

PCT/EP2004/014169

International filing date
(day/month/year)

13/12/2004

Applicant

FREESCALE SEMICONDUCTOR, INC.

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
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Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
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Authorized officer

Tanja Touysserkani

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference SC13131ET /PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2004/014169	International filing date (day/month/year) 13/12/2004	(Earliest) Priority Date (day/month/year) 12/12/2003
Applicant FREESCALE SEMICONDUCTOR, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 2

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/014169

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H03G3/00 H03F1/02 H03F3/45

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H03F H03G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/074980 A1 (SANDER WENDELL B) 20 June 2002 (2002-06-20) paragraph '0022!; figure 4	1-5, 14-16, 18
A	US 2002/183019 A1 (DENT PAUL W ET AL) 5 December 2002 (2002-12-05) paragraph '0035! - paragraph '0045!; figures 4A, 5	1-4, 14, 15
A	US 6 566 944 B1 (PEHLKE DAVID R ET AL) 20 May 2003 (2003-05-20) column 6, line 7 - column 7, line 66; figure 7	1-4, 14, 15
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

4 April 2005

Date of mailing of the international search report

11/04/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Kurzbaauer, W

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 558 793 A (DEUTSCHE AEROSPACE AG; DAIMLERCHRYSLER AEROSPACE AKTIENGESELLSCHAFT) 8 September 1993 (1993-09-08) column 8, line 45 - column 9, line 54; figures 5-8	1-4, 14, 15
A	US 2003/040343 A1 (EPPERSON DARRELL ET AL) 27 February 2003 (2003-02-27) paragraph '0012!; figure 2	1-4, 18
A	US 2002/137480 A1 (HADJICHRISTOS ARISTOTELE ET AL) 26 September 2002 (2002-09-26) paragraph '0002!; figure 5	1, 18
A	US 2003/197556 A1 (SCHELL STEPHAN V ET AL) 23 October 2003 (2003-10-23) figures 5,6	1-4, 18
A	US 5 497 125 A (ROYDS ET AL) 5 March 1996 (1996-03-05) figures 1,2	1, 18
A	US 2002/077066 A1 (PEHLKE DAVID R ET AL) 20 June 2002 (2002-06-20) paragraph '0005!; figure 4	1-4, 18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/014169

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2002074980	A1	20-06-2002	AU	3083202 A		24-06-2002
			EP	1378057 A2		07-01-2004
			JP	2004537873 T		16-12-2004
			TW	535354 B		01-06-2003
			WO	0249206 A2		20-06-2002
US 2002183019	A1	05-12-2002	EP	1451926 A2		01-09-2004
			JP	2005504458 T		10-02-2005
			WO	02097972 A2		05-12-2002
US 6566944	B1	20-05-2003	AU	2003205260 A1		09-09-2003
			EP	1476941 A2		17-11-2004
			WO	03073603 A2		04-09-2003
EP 0558793	A	08-09-1993	DE	4206352 A1		02-09-1993
			DE	59209813 D1		06-04-2000
			DK	558793 T3		05-06-2000
			EP	0558793 A1		08-09-1993
			ES	2143983 T3		01-06-2000
US 2003040343	A1	27-02-2003	EP	1419574 A2		19-05-2004
			WO	02101944 A2		19-12-2002
			US	2004072597 A1		15-04-2004
US 2002137480	A1	26-09-2002	EP	1410494 A2		21-04-2004
			JP	2004526376 T		26-08-2004
			WO	02082633 A2		17-10-2002
			US	2005032488 A1		10-02-2005
US 2003197556	A1	23-10-2003	US	6734724 B1		11-05-2004
			AU	9674001 A		15-04-2002
			CN	1470102 A		21-01-2004
			EP	1362415 A2		19-11-2003
			JP	2004529514 T		24-09-2004
			WO	0229969 A2		11-04-2002
US 5497125	A	05-03-1996	GB	2279779 A		11-01-1995
			CA	2124880 A1		03-12-1994
US 2002077066	A1	20-06-2002	AU	1668602 A		24-06-2002
			CN	1535497 A		06-10-2004
			EP	1366562 A2		03-12-2003
			WO	0249300 A2		20-06-2002

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

DOCKETED

12 APR 2005

IMPETUS

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

W.O. No. 11-6-05

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference

see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/EP2004/014169

International filing date (day/month/year)

13.12.2004

Priority date (day/month/year)

12.12.2003

International Patent Classification (IPC) or both national classification and IPC

H03G3/00, H03F1/02, H03F3/45

Applicant

FREESCALE SEMICONDUCTOR, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
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Authorized Officer

Kurzbauer, W

Telephone No. +49 89 2399-7479



Box No. 1 Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/014169

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	6-13,15-18
	No: Claims	1-5,14
Inventive step (IS)	Yes: Claims	6-13,17
	No: Claims	1-5,14-16,18
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

- 1 Reference is made to the following documents:

D1: US 2002/074980 A1 (SANDER WENDELL B) 20 June 2002 (2002-06-20)

2 INDEPENDENT CLAIM 1

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document):

A power amplifier module comprising:

an RF power amplifier circuit having a power supply regulated output power level (cf. Fig. 4 and §[0014]);

a power supply transistor coupled to the power amplifier circuit and operable to control a power supply to the power amplifier in response to a drive signal (cf. Fig. 4: M1);

a drive circuit (cf. Fig. 4: 101) coupled to the power supply transistor and operable to generate the drive signal in response to a power level input signal (cf. Fig. 4: Input Signal) and further comprising:

operating characteristic responsive means (cf. Fig. 4: 309) responsive to a voltage across the power supply transistor related to saturation of the power supply transistor (cf. §[0022]); and

a control circuit (cf. Fig. 4: 111) coupled to the drive circuit and operable to control the drive signal in response to a voltage across the power supply transistor (cf. §[0018]).

It should be noted that it is clear for a skilled person, that the drop of the gate voltage as described in D1 §[0022] is of course related to the source voltage and thus to the battery voltage VBAT. Consequently the voltage across the transistor (i.e. the voltage between the gate and the source) is an indicator for the saturation state of M1.

3 DEPENDENT CLAIMS 2-5, 14-16

Dependent claims 2-4, 14, 15 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in

respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

For the same reason as stated above claims 2 and 5 are also not novel.

Also in D1 the control circuit comprises a negative feedback loop and the power supply transistor is a Field Effect Transistor.

In D1 it is further disclosed that the supply voltage for the power transistor is a battery voltage which is hence variable.

The replacement of the FET by a bipolar transistor does not require an inventive step as it this is usual in the art dependent on the provided technology.

2 INDEPENDENT CLAIM 18

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not inventive in the sense of Article 33(3) PCT. Document D1 discloses (the references in parentheses applying to this document): an power amplifier circuit having a power supply regulated output power level (cf. Fig.:4 and §[0014]); a power supply transistor coupled to the power amplifier circuit and operable to control a power supply to the power amplifier in response to a drive signal (cf. Fig.4: M1); a drive circuit (cf. Fig. 4: 101) coupled to the power supply transistor and operable to generate the drive signal in response to a power level input signal (cf. Fig.4: Input Signal) and further comprising: operating characteristic responsive means (cd. Fig.4: 309) responsive to a voltage across the power supply transistor related to saturation of the power supply transistor (cf. §[0022]); and a control circuit (cf. Fig.4: 111) coupled to the drive circuit and operable to control the drive signal in response to a voltage across the power supply transistor (cf. §[0018]. However, a skilled person confronted with the problem to find a power efficient controllable RF amplifier as it is commonly required in GSM equipment would use such an amplifier for controlling the output power of a power amplifier in TDMA

converter as it is even suggested in D1 Fig.3: SMPA. He would thus end up with the claimed subject matter without having performed any inventive step.